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Identifying Gypsy Moth Early Larval Instars

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There are 4 principal characteristics to use in distinguishing the first 3 larval instars of gypsy moth under field conditions:

1. **body size**
2. **color** on the **upper body surface**
3. **color of head capsule**
4. **width of head capsule** in relation to **width of the body**

The 1st instar.

Newly hatched 1st instar larvae are buff-colored but turn black within several hours (Figure 1, left.). The body length of this instar ranges from 3 to 5 mm. The head capsule is always black. As the larvae prepare to molt into the 2nd instar, their body color lightens to a characteristic greasy appearance (Figure 1, right.).



Figure 1.

The 2nd instar.

Figure 2 shows a comparison of a late 1st instar, just prior to molting (left), with a newly molted 2nd instar (right). Note that though size is similar, the early 2nd instar is nearly black and irregularly shaped yellow marks are visible on the upper body surface. The head capsule is black and the body length of this instar can vary from 5.5 to 11 mm.



Figure 2.



Figure 3.

The 3rd instar.

Coloration becomes more pronounced on the 3rd instar larva. Figure 3 illustrates a comparison of a 2nd instar preparing to molt (right) and a newly emerged 3rd instar (left). The head capsule is black but the orange, nearly crown-shaped markings on the upper body surface of the 3rd instar larva are distinctive. Notice, also that the head capsule of the newly molted 3rd instar is as wide as the body. Within each instar, as the larvae feed, they grow in length and width — however, the size of the head capsule does not change. Therefore, as larvae approach the point where they molt into the next instar, the head capsule appears much smaller in relation to the width of the body. The body length of the 3rd instar varies from 10 to 15.5 mm.



Figure 4.

The 4th instar.

Figure 4 illustrates the dramatic change in larval appearance of the 4th instar. The head capsule is now yellow mottled with black markings (appear as eye spots). The markings on the body surface are distinctively 5 pairs of blue spots followed by six pairs of brick red spots. Body length varies from 15 to 24mm.